

REMARKS

Claims 1, 3, 102 and 103, as amended, remain herein. Claims 4-101 remain herein but stand withdrawn from consideration.

Claims 1 and 3 have been amended to recite more clearly applicant's invention, and new claims 102 and 103 which depends from claim 102 have been added. See applicant's claims 1-3 as filed, and the specification, as filed, page 37, lines 16-21 and page 17, lines 17-24. Claim 2 has been canceled without prejudice or disclaimer.

The specification has been edited for clarity.

1. The finality of the restriction requirement is acknowledged. The Office Action Summary page does not show that claims 4-101 have been withdrawn from consideration. The Examiner indicated in a June 15, 2004 telephone call from applicant's representative that claims 4-101 should be listed as "withdrawn" on the Office Action Summary page.

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2. Claims 1-3 were rejected under 35 U.S.C. §102(b) over JP 10-48651. Claim 1 has been amended to recite the subject matter of claim 2, which has been canceled.

The presently claimed electrical circuit board includes an insulting film covering the side surfaces of the X wiring lines, the insulating film being an insulating metal oxide film formed by oxidizing the sides surfaces of the X wiring lines. This arrangement is nowhere disclosed or suggested in the cited reference.

The discussion below is based in part on the corresponding English language translation of JP '651, filed with the application on March 7, 2002.

JP '651, paragraphs 0014 and 0015, describe the bridging portions that electrically connect the segmented gate wiring lines or source wiring lines and inform the reader that the pixel electrodes forming the pixel portions are simultaneously formed of the same conductive material. Thus, the bridging portions and the pixel electrodes are formed of the same conducting material.

However, JP '651 does not disclose an insulating metal oxide film formed by oxidizing the surfaces of the gate wiring lines or source wiring lines. The Office Action, numbered paragraph 6, contains the comment that "[r]egarding claim 2, Sai

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Motoshige discloses the insulating film of at least the side surface of the X wiring lines is a metal oxide film formed by oxidizing the conductive metal film (paragraph 0019)."

Applicant respectfully disagrees. Paragraph 0019 has no disclosure that the insulating film at the side surfaces of the X wiring lines is a metal oxide film formed by oxidizing the conductive metal film. The first two sentences of paragraph 0019 read:

In the first basic configuration, surfaces of the segmented gate wiring lines or the segmented source wiring lines may be formed of chromium or molybdenum, and the bridging portions and the pixel electrodes may be formed of an oxide transparent conductive material. In the second basic configuration, surfaces of the segmented gate wiring lines or the segmented source wiring lines may be formed of chromium or molybdenum, and the bridging portions and the first pixel electrodes may be formed of an oxide transparent conductive material." (Emphasis added)

The "oxide transparent conductive material" denotes the material that forms the bridging portions and the pixel electrodes. Pixel electrodes need to be transparent and conductive; therefore, such material is formed of a transparent metal oxide such as ITO (indium tin oxide). Thus, the "oxide transparent conductive material" cannot be an insulating film. Paragraph 0019 further states:

When the surfaces of the wiring lines are formed of such chromium or molybdenum, the possibility of oxidizing the surfaces of the wiring lines becomes less when forming holes in the insulating film on the wiring lines and then forming pixel electrodes or bridging portions composed of an oxide transparent conductive material, and thus contact resistance is reduced." (Emphasis added)

The reader accordingly is informed that, because the oxidation of the surfaces of the gate wiring lines or source wiring lines should be avoided as it increases contact resistance, the surfaces of the wiring lines are preferably formed of chromium or molybdenum, which is immune to oxidation.

Thus, JP '651, paragraph 0019, does not disclose using a metal oxide film formed by oxidizing a conductive metal film as the insulating film, i.e., an insulting film covering the side surfaces of the X wiring lines being an insulating metal oxide film formed by oxidizing the sides surfaces of the X wiring lines, as recited in applicant's claim 1.

In contrast, applicant's claims 1 and 102 are opposite that which is taught in JP '651 because in the former the top surfaces and/or side surfaces of the X wiring lines are oxidized to be an insulating metal oxide film, which is used as the insulating film.

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Additionally, JP '651, paragraphs 0023-0025, describe the following points of the production method:

i) The gate wiring line 23 and the source wiring line 24 are formed of a conductive film made of a conductive metal material such as Cr and Mo (paragraph 0023).

ii) The gate wiring line 23 and the source wiring line 24 are covered with the insulating film 25 made of SiNx (paragraph 0024).

iii) The end portions 24a of the source wiring line 24 are connected to the bridging portion 36 made of a transparent conductive film that is made of an oxide transparent conductive material such as ITO. The bridging portion 36 is connected to the source electrode 31 (paragraph 0025 and Fig. 2).

The JP '651 invention is directed to a liquid crystal display device meaning that the pixel electrodes are formed of a transparent conductive material such as ITO, a conductive transparent metal oxide film (paragraph 0022 and 0025). The gate wiring lines and the source wiring lines are formed of chromium or molybdenum, as described in (i). The insulating film covering the gate wiring lines and the source wiring lines are formed of an insulative material such as SiNx, as described in (ii). It is apparent from these recited items that the insulating film of JP '651 is not an insulating metal oxide formed by oxidizing the surfaces of the gate wiring lines and the source wiring lines. Additionally, JP '651 does not

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disclose using an insulating metal oxide film formed by oxidizing the surfaces of the X wiring lines as the insulating film.

For the foregoing reasons, JP '651 fails to disclose all elements of applicant's claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in JP '651 that would have suggested the desirability of modifying any portions thereof effectively to suggest applicant's presently claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

All claims 1, 3, 102 and 103 are now proper in form and patentably distinguished over all grounds of rejection stated in the Office Action. Accordingly, allowance of all claims 1, 3, 102 and 103 is respectfully requested.


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Should the Examiner deem that any further action by the applicant would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicant's undersigned representatives.

Respectfully submitted,

PARKHURST & WENDEL, L.L.P.

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Date

  
Charles A. Wendel  
Registration No. 24,453  
Robert N. Wieland  
Registration No. 40,225

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PARKHURST & WENDEL, L.L.P.  
1421 Prince Street, Suite 210  
Alexandria, Virginia 22314-2805  
Telephone: (703) 739-0220

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